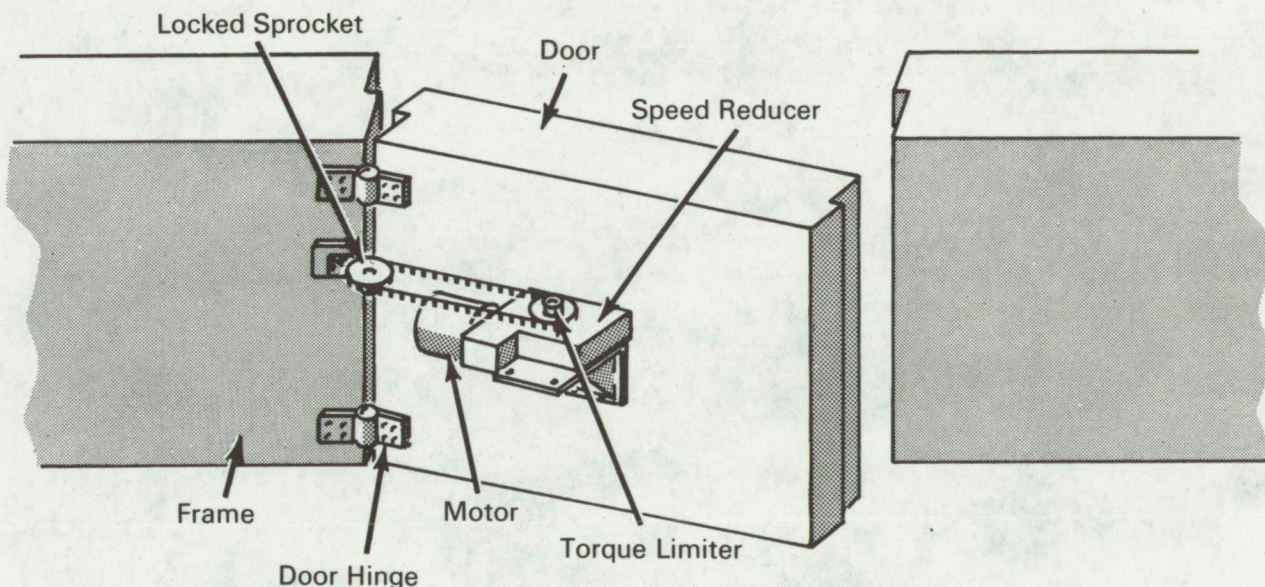


AEC-NASA TECH BRIEF



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Simple Motor Drive System Operates Heavy Hinged Door



The problem:

It was required to remotely operate heavy steel radiation shielding doors weighing approximately 25,000 pounds each. In the particular situation there was limited space for mounting any mechanism on the door jamb or wall. Also the drive system had to be such that (1) it could be manually operated and (2) if the door were jammed the drive system would not be damaged.

The solution:

A standard motor reducer unit is mounted on the door. This reducer drives a sprocket which is linked by chain to a fixed sprocket of the same size on the door jamb.

How it's done:

The drive consists of a standard motor reducer unit mounted on the door, using a suitable supporting

bracket. A sprocket is mounted on a torque limiter attached to the output of the reducer. Another sprocket of the same size is mounted on a bracket fixed to the door jamb and is locked in the bracket to prevent it from rotating. A roller chain is fitted around the sprockets, using a turnbuckle to take up the slack. Limit switches are arranged to function at the open and closed positions of the door so as to stop the motor drive at the extreme of the door motion. In operation, the door will swing in a direction opposite to that of the reducer output shaft. If a sizable object obstructs the door when it is moving, the torque limiter will slip and the door can stop, even though the motor continues to operate. The same protection functions when the door does not stop on reaching one of the limit switch trip points, in the event a limit switch should fail.

(continued overleaf)

The motor drive may easily be made inoperative by loosening the torque limiter so that the drive sprocket turns freely on its mount. The door may then be opened or closed manually. The locking bolt on the wall-mounted sprocket can be removed, permitting this sprocket to rotate and permit the same result. In this case the torque setting is not disturbed.

Notes:

1. The major components of this type of motor drive consist entirely of standard commercially available items.

2. Inquiries concerning this innovation may be directed to:

Technology Utilization Officer
AEC-NASA Space Nuclear Propulsion
Office
U.S. Atomic Energy Commission
Washington, D.C. 20545
Reference: B66-10712

Patent status:

No patent action is contemplated by AEC or NASA.

Source: R.G. Pitkin
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(NU-0093)